

# 2002 OTC NO<sub>x</sub> Budget Program Compliance Report

Prepared By:  
Clean Air Markets Division  
Office Of Air and Radiation  
United States Environmental Protection Agency

June 25, 2003



## Background

The NO<sub>x</sub> Budget Program was established by the states in the Ozone Transport Commission (OTC) to reduce NO<sub>x</sub> emissions region-wide as a part of each state's effort to attain the national ambient air quality standard (NAAQS) for ground level ozone. The OTC comprises the states of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, Delaware, the northern counties of Virginia, and the District of Columbia.

In September 1994, the OTC adopted a memorandum of understanding (MOU) to achieve regional emission reductions of NO<sub>x</sub>. (Virginia did not sign the MOU.) Phase I included the installation of reasonably available control technology (RACT). In Phases II and III, states committed to developing and adopting regulations that would reduce region-wide NO<sub>x</sub> emissions in 1999 (Phase II) and further reduce emissions in 2003 (Phase III).

For Phases II and III, the OTC states in collaboration with the U.S. EPA, as well as representatives from industry, utilities, and environmental groups, developed a model rule which identified key elements that should be consistent among the regulations in all participating states so that an integrated interstate emissions trading program could be created. The NO<sub>x</sub> Budget Program involves an allowance trading system which harnesses free market forces to reduce pollution, similar to the U.S. EPA's Acid Rain Program. Under this program, budget sources were allocated allowances by their state government. Each allowance permits a source to emit one ton of NO<sub>x</sub> during the control period (May through September) for which it is allocated or any later control period. Allowances may be bought, sold, or banked. Any person may acquire allowances and participate in the trading system. Each budget source must comply with the program by demonstrating at the end of each control period that actual emissions do not exceed the amount of allowances held for that period. However, regardless of the number of allowances a source holds, it cannot emit at levels that would violate other federal or state limits (e.g., NSPS, Title IV, NO<sub>x</sub> RACT).

The NO<sub>x</sub> Budget Program is separate and distinct from the Acid Rain "Phase I and II" NO<sub>x</sub> reduction requirements. Sources affected by both programs are responsible for demonstrating compliance with the requirements of each program.

The 2002 OTC NO<sub>x</sub> Budget Program Compliance Report summarizes compliance results for the fourth year of the program. Nine states (Connecticut, Delaware, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, and Rhode Island) and the District of Columbia participated in the program in 2002. Exhibit 1 shows a summary by state of the NO<sub>x</sub> allowance allocations and emissions, and Appendix A lists the affected sources, emissions from each source, and allowance holdings. Generally, the program affects electric utilities and large industrial boilers.

## 2002 Compliance Summary

There were 1,143 affected sources (i.e., combustion units) that underwent annual reconciliation for 2002 to determine whether sufficient allowances were held to cover emissions (see Appendix A). These affected sources emitted at a level approximately 11 percent below 2002 allocations. This percentage is similar to that achieved during the 2001 ozone season (12 percent).

<b>Exhibit 1</b>									
<b>OTC NO<sub>x</sub> Budget Program State Allowance Allocations And Emissions (tons) for Covered Sources</b>									
State	1999 Allocation <sup>1</sup>	2000 Allocation	2001 Allocation	2002 Allocation	Baseline (1990) Emissions	1999 Emissions	2000 Emissions	2001 Emissions	2002 Emissions
Connecticut	6,312	5,866	5,866	5,866	11,130	5,830	4,697	4,833	2,953
Delaware	6,142	6,142	6,142	6,142	13,510	6,160	5,256	5,799	5,582
District of Columbia	N/A	N/A	481	481	576	N/A	N/A	284	611
Maryland <sup>2</sup>	N/A	1,831 <sup>3</sup>	13,709 <sup>4</sup>	22,881	54,991	N/A	2,329 <sup>5</sup>	17,559 <sup>6</sup>	29,171
Massachusetts	20,380 <sup>7</sup>	18,146	18,145	18,146	41,330	17,293	14,324	12,835	12,673
New Hampshire	6,788	5,119	5,119	5,119	14,589	3,463	2,056	2,081 <sup>8</sup>	2,528
New Jersey	21,292	17,340	17,340	17,340	46,963	15,390	14,630	15,296	17,084
New York	54,276	47,016	47,016	47,016	85,642	47,267	43,583	39,050	38,317
Pennsylvania	103,668	93,312	93,312	93,558	203,181	79,166	87,329	85,191	84,224
Rhode Island	580	626	626	626	1,099	274	288	355	250
Total	219,438	195,398	207,756	217,175	473,011	174,843 <sup>2</sup>	174,492 <sup>2</sup>	183,283 <sup>2</sup>	193,393

<sup>1</sup> Includes early reduction credit allowances.

<sup>2</sup> Due to a court Consent Decree, no Maryland sources participated in the trading program during the 1999 ozone season, five sources participated in 2000 (an additional 28,559 tons of emissions were from nonparticipating sources), eight sources participated in 2001 (an additional 9,567 tons were from nonparticipating sources), and all 17 sources participated in 2002 (listed in Appendix A).

<sup>3</sup> For the purpose of calculating the Progressive Flow Control ratio, the total Maryland year 2000 allocation was 22,881 (21,050 allowances would have been allocated to nonparticipating sources).

<sup>4</sup> For the purpose of calculating the Progressive Flow Control ratio, the total Maryland year 2001 allocation was 22,881 (9,172 allowances would have been allocated to nonparticipating sources).

<sup>5</sup> The total emissions from Maryland sources was 30,888 (28,559 tons were from nonparticipating sources).

<sup>6</sup> The total emissions from Maryland sources was 27,126 (9,567 tons were from nonparticipating sources).

<sup>7</sup> Massachusetts allocated 700 additional vintage year 1999 early reduction credit allowances in November 2000.

<sup>8</sup> Some of the additional reductions lowering New Hampshire's emissions from 3,463 tons in 1999 to 2,056 tons in 2000 and 2,081 tons in 2001 can be attributed to major unplanned outages of Newington Station Unit 1 (NT1) for almost the entire ozone season of 2000 and a major portion of the ozone season of 2001. NT1 emitted only 44 tons in 2000 and 468 tons in 2001 compared to 1,092 tons in 1999.

The total number of allowances deducted for 2002 emissions was 200,758 (193,225 to cover emissions and an additional 7,533 banked allowances which were taken at 2:1 under the Progressive Flow Control (PFC) requirements). This represents approximately 92 percent of all 2002 allowances issued and about 68 percent of all allowances available, which includes banked allowances. Four sources had a total of 78 year 2003 penalty allowances deducted and two sources had a total of 90 year 2002 penalty allowances deducted, because they did not hold enough allowances in their compliance accounts to cover their emissions for the 2002 ozone season. Exhibit 2 displays these allowance deductions, as well as the remaining bank of 1999 through 2002 allowances.

All 1999 through 2002 allowances have been removed from the EPA NO<sub>x</sub> Allowance Tracking System (NATS) as part of the transition to the NO<sub>x</sub> SIP Call Program, which began May 1, 2003 for these OTC states.

At an individual source, the number of allowances surrendered was not always equal to the number of tons emitted at the unit, for two possible reasons. First, when a unit shares a common stack with other units, the facility is allowed to choose the proportion of allowances deducted from each unit sharing the stack, as long as enough allowances are surrendered to cover the total number of tons emitted. If no apportionment was made, EPA deducted allowances equally among the units sharing the stack to cover total emissions reported for the stack. Second, for some units, the number of allowances surrendered was greater than the number of tons emitted at the unit because the unit was required to surrender some banked allowances at 2:1 under the PFC requirements. Appendix A reflects both the deductions for emissions at each unit after the common stack apportionment was made, and the 2:1 deductions required by PFC .

<b>Exhibit 2</b>	
<b>NO<sub>x</sub> Allowance Reconciliation Summary</b>	
<b>Total Allowances Held in Accounts as of 12/31/02 (1999 through 2002 Vintages)<sup>1</sup></b>	<b>295,633</b>
Compliance and Overdraft Accounts <sup>2</sup>	290,642
Other Accounts <sup>3</sup>	4,991
<b>Allowances Deducted for Emissions (1999 through 2002 Vintages)</b>	<b>200,758</b>
<b>Penalty Allowances Deducted<sup>4</sup></b>	<b>168</b>
<b>Banked Allowances (1999 through 2002 Vintages)<sup>5</sup></b>	<b>94,163</b>
Compliance and Overdraft Accounts <sup>2</sup>	89,172
Other Accounts <sup>3</sup>	4,991

<sup>1</sup> December 31, 2002, represents the NO<sub>x</sub> Allowance Transfer Deadline, the point in time at which the affected source compliance and overdraft accounts are frozen and after which no transfers of 1999 through 2002 allowances will be recorded until annual reconciliation is complete.

<sup>2</sup> Includes 1,546 allowances held by sources that were not subject to program requirements in 2002.

<sup>3</sup> Other accounts refers to general accounts within the NO<sub>x</sub> Allowance Tracking System (NATS) that can be held by any source, individual or other organization and State accounts.

<sup>4</sup> Includes 78 year 2003 allowances and 90 year 2002 allowances.

<sup>5</sup> Reflects the 376 year 2002 allowances that were surrendered by Rhode Island sources as required by state regulation and 246 year 2002 allowances deducted from Brunot Island in Pennsylvania as required by the state.

### **Progressive Flow Control Ratio for Year 2002**

Progressive Flow Control (PFC) is intended to limit an increase in emissions associated with the use of banked allowances. The NO<sub>x</sub> Budget Program allows banking by sources, but PFC discourages the “excessive” use of banked allowances by establishing a discount rate on the use of banked allowances over a certain level. Under this program, a 2-for-1 surrender rate is applied to the use of a portion of banked allowances when the total

number of banked allowances in the program exceeds 10 percent of the allowable NO<sub>x</sub> emissions for all sources covered in an ozone season.

Since the number of banked allowances exceeded 10% of the total regional NO<sub>x</sub> budget for the year 2002, PFC was applied to the year 2002 reconciliation. The year 2002 PFC ratio of 0.27 was calculated in May of 2002 in the following manner.

Year 2002 PFC ratio = (0.10 x total NO<sub>x</sub> budget for the 2002 season) / total number of banked allowances (i.e., 1999 through 2001).

$$\text{Year 2002 PFC ratio} = (.10 \times 216,551) / 78,746 = 0.27$$

The ratio was applied to the banked allowances held in both compliance and overdraft accounts at the time deductions were made for the year 2002 reconciliation. Current year allowances (i.e., for year 2002 reconciliation, vintage year 2002 allowances) were deducted first at a 1:1 ratio. Then, only when needed, banked allowances (i.e., vintage years 1999 through 2001 allowances) were deducted. For each account, the first 27 percent of the banked allowances were available for deduction at a 1:1 ratio, and the remaining 73 percent were available at a 2:1 ratio, (i.e., 2 banked allowances for each ton of emissions).